LESSONS FROM THE FIELD

OBSERVATION OF KANGAROO MOTHER CARE IMPLEMENTATION

AT A DISTRICT HOSPITAL IN MALAWI

by Natsuko Sawaya

A paper presented to the faculty of The University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of (Master of Science in) Public Health in the Department of Maternal and Child Health.

Chapel Hill, N.C.

(April 17, 2017)

Approved by:

_____
First reader

_____
Second reader

Abstract

Problem

Kangaroo Mother Care (KMC) is an evidence based, high-impact and cost-effective method to support newborns to survive. However, successful KMC implementation in resource-limited settings is not straightforward.

Approach

The lead author undertook a two-and-a-half-month resident observation at a district hospital in Malawi to identify the challenges that the facility was facing regarding KMC implementation. The observation was documented on a quality process map that outlined KMC intervention including the insights and knowledge of local hospital staff.

Local setting

The observation took place in a district and referral hospital with over 700 deliveries a month. Only one nurse-midwife was assigned for KMC intervention. Despite KMC quality improvement (QI) interventions by aid organizations, not all the infants with birthweights less than 2,000 grams received KMC at the hospital.

Relevant changes

Working side by side with the data registrars enabled them to comprehend and execute a locally developed idea for a control system of KMC-eligible babies to be admitted at the KMC Unit accordingly. Enhanced understanding of the processes enriched the

guidance that the KMC nurse-midwife provided to mothers and caregivers, which contributed to establishing positive relationships with the families and encouraging the KMC practice.

Lessons learnt

An embedded observation over an extended period was an optimal approach to understand the actual circumstances and barriers regarding KMC implementation, because good working relationships with the facility staff strengthened collaboration and allowed testing of new local-derived change ideas. However, even though challenges were identified, many could not be addressed because of limitations in hospital and health system resources. Holding QI meetings for better management of existing capacity and workflows and involving other stakeholders, especially the government, to improve the infrastructure and human resource allocation are crucial to enable better KMC uptake and improve infant outcomes.

Introduction

Malawi is one of the few countries that achieved the Millennium Development Goal (MDG) 4, reducing under-five child mortality by almost by half in the last 15 years (112 to 64 deaths per 1,000 live births).[1] However, neonatal mortality, which made up 42% of under-five mortality in 2015 (27 per 1,000 live births), declined more slowly.[1] Complications of prematurity are the leading cause of neonatal deaths.[2]

Countries like Malawi have limited resources to provide high-technology support for small and preterm infants. Since it was first developed in Bogota, Colombia in the late 70's, the survival benefits of KMC have been reported in multiple settings as a primary means of support for premature and low birthweight (LBW) babies (<2500 grams).[3] KMC works by maintaining optimal thermal control, facilitating breastfeeding, reducing opportunistic infection and respiratory disease and enhancing bonding between baby and mother (or caregiver).[3,4] The World Health Organization (WHO) has been promoting KMC through specific guidelines on this topic. However, the practical implementation of KMC is challenging and the impact and cost effectiveness of KMC implementation in very poor settings are yet to be determined.[5] Malawi has emphasized KMC for premature and small babies at health facilities as a part of Every Newborn Action Plan, an action plan to end preventable deaths in Malawi.[6]

Local settings

This KMC observational study took place in the context of a 13-hospital QI collaborative in central Malawi, supported by a local NGO, MaiKhanda, and the US-based Institute for Healthcare Improvement (IHI), to improve maternal and newborn processes of care around the time of birth. Each hospital identified QI team members among the maternity ward medical and administrative staff. The clinical content of the KMC intervention was informed by the Malawian Ministry of Health national guidelines and hospital protocols, and the observation data were supplemented by data obtained from the KMC patient register, which was completed in the KMC unit by the attendant nursing staff.

Kasungu District Hospital (KDH) is a referral hospital with a high volume of deliveries, over 700 per month, situated in the central region of Malawi. The labour and postnatal wards are each staffed by two to four nurse-midwives (depending on availability), the KMC unit and nursery are covered by a nurse-midwife during the daytime; a clinician (medical officer with emergency obstetric training) also covers the maternity ward during the daytime and is on call during the night. The staff are supported by two non-medical attendants. The hospital experiences frequent (daily) prolonged (hours) interruption in electricity and water supply, complicated further by the lack of a functioning generator. At the start of the maternal newborn QI intervention, a KMC room was configured in a very small annex where three adult beds could barely fit. The room was accessible only through the waiting room of expectant mothers in labor.

All LBW babies were eligible for KMC intervention, however, at district hospitals, stable babies weighing 2,000 grams or more and having initiated KMC, were encouraged to be referred to community support. Therefore, at KDH, the KMC Unit only admitted infants with birthweight of 2,000 grams or less.[7] Hospital QI teams were asked to identify KMC eligible babies to ensure that they were admitted to the KMC unit for care and that these newborns reliably received the KMC protocol and registered accordingly on the KMC register. Between the start of QI interventions in March 2015 and July 2016, there was a significant increase in mean admission rates to KMC units across the 13 facilities (from about 47% to 62%)[8]. However, at KDH, only about 30% of KMC eligible babies were receiving KMC treatment, and some newborns, who may have had LBW, lacked a recorded birthweight.[8]

Approach

During the summer 2016, the lead author (NS) undertook a two-and-a-half-month resident observation at KDH to identify the challenges that the facility was facing regarding KMC implementation. In order to understand the application of KMC across Malawian district hospitals, NS also observed KMC practices at five other hospitals that were participating in the QI collaborative. With agreement of the KDH director and staff, NS undertook an observation strategy, following QI methods: 1) creation of a process map, which describes the steps from the moment of delivery to discharge from the KMC unit and identifies gaps in care along the map; 2) meeting daily with staff to develop ideas for improvement; 3) supporting the facility staff and KMC families to test ideas for

improvement; and, 4) measurement of improvement and reviewing and retesting new ideas for improvement.

Observation of KMC procedure

When babies weighing less than 2,000 grams were delivered, nurse-midwives managed these infants with the usual labor ward newborn management, i.e., wrapped the babies with cotton cloths that the families brought to the labour ward. The nurse-midwives then took the babies to the nursery, transferring the infants' care to postnatal nurse-midwives, who were responsible for transferring the babies to the KMC nurse-midwife. When the mother or caregiver came to the nursery, the KMC nurse-midwife counselled the family to initiate the KMC treatment and accompanied them to the KMC room. However, the KMC room often had no space for further admissions, so the babies had to remain in the nursery, where they were given conventional care. A shortage of KMC nurse-midwives, especially at the night, meant that some KMC eligible babies had to wait to be actually provided KMC. Furthermore, some babies were delivered without a midwife in attendance, because the available staff was assisting other deliveries.

The ambient temperature of the Malawian nights during the observation period was cool with temperatures dropping below 10 C°, so heat loss was a significant concern for infants with delayed initiation of KMC. The delay was even more pronounced for babies delivered by caesarian section (about 13% of all deliveries[9]), since they were delivered in a separate building and had to be transported to the labour ward, which could be further delayed due to lack of staff. Frequent electricity cuts disabled the heaters in the

nursery, further compromising body temperature for small infants that were not in KMC. Newborn deaths were often found during the night by mothers when they went to breastfeed, or by the nursery nurse at check-up times.

Many nurse-midwives worked for long hours and some even covered at different wards after or before their shift at the maternity ward. Staff shortages and the access difficulties due to the location of the KMC room prevented continuous attendance by the hospital staff in the KMC room, especially over nights and weekends, resulting in unreliable monitoring of the KMC mother-baby pairs. The room was almost always overcrowded with families often begging staff to allow them to return home; some families simply left with their babies. Due to intense pressure from mothers and families, many babies were discharged without meeting the discharge criteria (e.g., 15 grams of weight gain over 3 consecutive days or weight reaching at least 1,500 grams[7]). The KMC nursery nurse-midwife during the observation period was assigned only for a few months and she had never worked with newborns before. Although some posters and documents were on the wall of the KMC room to support the families, most did not or could not read them. In addition, the KMC nurse-midwife was responsible for filling out the KMC registry.

Relevant Changes

Mapping the end-to-end process of the KMC intervention with the information collected on a daily basis helped to not only to identify the struggles and challenges at different levels, but also to highlight some areas of possible improvement.

Communication

Staff shortages and workloads affected the communication among the different sections, e.g., between the professional staff and the data registrars, or between the professional staff and KMC families. The scarce communication affected both the execution of ideas proposed by the QI teams and the motivation of the KMC families to provide continuous KMC. Taking advantage of being at KDH everyday, some supports on communication and creation of informative materials were integrated. NS participated in QI meetings held every couple of weeks with MaiKhanda and the hospital staff at KDH. The QI teams used the Plan-Do-Study-Action (PDSA) cycle to test new local improvement ideas, and MaiKhanda staff helped to collect the relevant data and discussed progress and concerns at meetings. An example of the new local ideas from the QI teams was called “KMC hour”. It set up a fixed time every day to assess if all the KMC eligible babies born in the last 24 hours were receiving KMC treatment and were registered accordingly on the KMC register. If there were any babies missing, the KMC nurse-midwife needed to be notified. Data registrars were responsible for this operation using a “KMC hour” sheet. At the beginning of the observation, the data registrars were aware of this, but they were not conducting “KMC hour”. They claimed that they did not understand what to do, and due to their daily workload, the “KMC hour” was not prioritized. They were encouraged to become familiar with this new approach, and once they comprehended what was expected, they adjusted their tasks to collect the newborns’ information for the preceding 24 hours as the first thing each morning. During the daytime, they registered the information on the maternity register and every

afternoon at three o'clock, they checked the KMC register and notified the relevant nurses about any missing babies, following the "KMC hour" instruction. They also utilized this opportunity to inform the nurses about babies with no birthweight registered. In this way, the PDSA cycle for "KMC hour" started to be utilized.

KMC Admission

As the testing phase of "KMC hour" started, admission rates of KMC-eligible babies increased greatly as shown on the table 1 (June to July 2016). The collaborative effort of frequent visits of mother-baby pairs in the KMC room decreased the incidence of mothers leaving without being discharged. However, as the admissions increased, inadequate space remained a serious problem. While the KMC room was highly over crowded (e.g., 9 babies with 12 adults in the room, with only 3 adult beds), we observed that the babies' weight gain was consistently inadequate. For example, one day, most of the babies were discharged upon strong requests by the families and only one mother-baby pair remained. Later in the day, only one admission (newborn twins with their mother and a family member) joined in the KMC room. With this appropriate number of people in the room, the baby who had not been gaining weight started to increase his weight from this day.

Given the increased risk of neonatal death in the nursery during power failures, the staff discussed the use of KMC during those cuts, however, the KMC protocol and space availability in the nursery room could not adequately manage the situation under such conditions.

KMC Sensitization and Supervision

As most of the mothers were unaware of KMC before the current delivery, NS contacted the antenatal care ward and the maternity waiting home nurses, as well as the management team of KDH, to explorer integrating KMC sensitization and demonstration at their daily health talk, which was also emphasized in the Every Newborn Action Plan.[6] Every staff was aware of the importance of KMC and agreed with the integration. Staff also raised an important opinion that the dolls for the KMC demonstration needed to be culturally appropriate (not white baby dolls). The management team agreed and purchased dolls for distribution to the maternity waiting home and the antenatal care ward. Some videos of well-performing KMC admission at another hospital, as well as at the maternity waiting home at KDH, were shown to the nurse-midwives at the KDH maternity ward. In addition, posters using photos were prepared as instructional materials for the nurses and families on the KMC room wall.

Enhanced communication contributed to strengthening the relationship between the KMC nurse-midwife and the KMC families. Even though the nurse needed and wanted to visit the KMC room every two hours, she had often no time availability due to nursery room demands. When this backup occurred, she started to ask another available nurse (if any), or even student intern nurses, all of whom had been trained in KMC at their colleges, to visit the KMC families. The KMC nurse also encouraged the KMC families to come to see her whenever they had concerns or questions. The hospital staff pointed out that there was not an established system to check how the discharged babies were

doing. Since the KMC babies were mostly discharged without reaching the discharge criteria and many did not come back for follow-up visits, the hospital staff felt the need for a better follow-up network. However, enhanced communication also encouraged more families for follow-up visits. They were invited to the KMC room to communicate with the current KMC families. Their experience and the growing babies became valuable testimony and evidence to encourage the current KMC families. The staff also started to note the telephone numbers of KMC families in order to be able to contact them if they did not come for follow-up visits or if they had left without being officially discharged.

Lessons Learnt

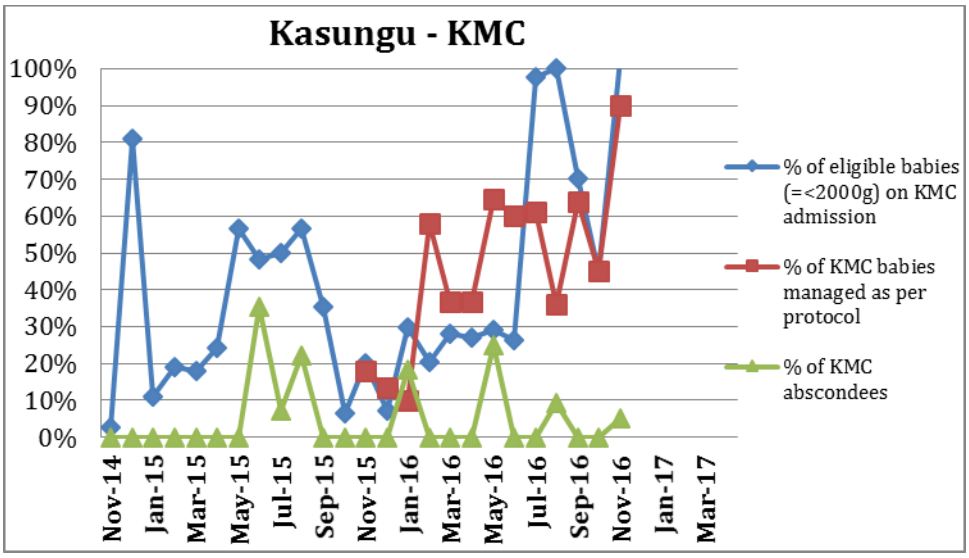
An embedded observation over an extended period was a highly productive approach to understand the complexities of trying to implement reliable KMC under very resource constrained settings.

Many challenges were identified and some ideas were successfully tested to improve the KMC process, however, the major issues could not be addressed because of limitations in hospital and health system resources. The shortage of the nurse-midwives remained as a crucial barrier to the full implementation of KMC and the management of the high volume of deliveries. However, the student nurses are a potential task force for KMC implementation throughout Malawi if the staff allocation system is enhanced. Reviewing and organizing the overall workflow and coordination with other stakeholders such as the government and other aid organizations implementing projects

for the maternity ward at KDH need to be addressed. The findings of this observational study were passed on to some of these stakeholders who have the ability and means to improve the crucial factors for the use of KMC in these settings.

While the conclusions from a QI process at a single institution are not necessarily generalizable, the benefits of an extended observation should be acknowledged. Policy recommendations such as KMC are implemented in settings that vary due to their specific contexts. Extended observation and establishing solid and trusting local relationships make it possible to understand those contexts, and to appropriately adjust implementation strategies.

Table 1: KMC admission at Kasungu District Hospital



Source: The IHI monthly data of preterm project in Malawi

Box 1: Summary of main lessons learnt

- An embedded observation over an extended period was a highly productive approach to understand the complexities of trying to implement reliable KMC under very resource constrained settings specific to KDH.
- Establishing a good relationship among the facility staff and with KMC families enhanced collaboration and encouraged the continuous KMC.
- Even though the challenges were identified, many factors required other stakeholders' involvement for the improvement.

References

1. National Statistical Office. Malawi Demographic and Health Survey 2015-16: Key Indicators. 2016;May 2016:45. doi:10.1017/CBO9781107415324.004.
2. WHO Malawi: Giving the smallest babies the best chance at life. *Who*. 2016;(August 2015):2015-2017. http://www.who.int/features/2015/malawi-infant-survival/en/.
3. A C-A, Jl D. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants (Review). *Cochrane Database Syst Rev*. 2016;(8). doi:10.1002/14651858.CD002771.pub4.www.cochranelibrary.com.
4. E.O. B, R. D, D. S, et al. Kangaroo mother care and neonatal outcomes: A meta-analysis. *Pediatrics*. 2016;137(1). doi:10.1542/peds.2015-2238.
5. Chan GJ, Labar AS, Wall S, Atun Rifat. Kangaroo mother care: a systematic review of barriers and enablers. *Bull World Heal Organ Febr 2016*. 2016;94(2). http://www.who.int/bulletin/volumes/94/2/15-157818.pdf?ua=1. Accessed December 13, 2016.
6. EVERY NEWBORN ACTION PLAN : AN ACTION PLAN TO END PREVENTABLE DEATH IN MALAWI, Government of Malawi; 2013.
7. MALAWI NATIONAL GUIDELINES FOR KANGAROO MOTHER CARE - Revised May 2013. Ministry of Health, Republic of Malawi, 2013.
8. Malawi Preterm Dashboard, Institute for Healthcare Improvement, 2017.
9. Maternity Clinic Monthly Report (Jan.-Jul. 2016), Kasungu District Hospital, Malawi, 2016.